

What is claimed:

1. A flexible seat cushion for supporting a person in a seated position thereon, having generally transversely spaced and longitudinally extending longitudinal sides and generally longitudinally spaced and transversely extending front and rear transverse sides, the longitudinal sides intersecting the rear side at rear corners and the longitudinal sides intersecting the front side at front corners, and an upper surface extending between the sides and defining a support contour for contacting and supporting a person in a sitting position, comprising:
  - a support contour, including relief areas at locations adjacent to skin covering at least one bony prominence of a pelvic area of the person seated on the cushion, and support areas adjacent to skin covering tissue masses adjacent to the one bony prominence, the relief areas and support areas positioned to establish relatively less pressure on the skin in the relief areas and relatively more pressure on the skin in the support areas, the relief areas including a center cavity generally transversely centered between the longitudinal sides and longitudinally spaced more toward the rear side than the front side;
  - a support member attached to a rear corner of the flexible seat cushion, the support member having relatively less flexibility than the seat cushion to resist deformation of the support contour from contact with the pelvic area of the person when seated on the seat cushion.
2. A seat cushion as defined in claim 1, further comprising:
  - a connector member connected to the support member and extending along one of the longitudinal sides or the rear side which intersect at the rear corner.
3. A seat cushion as defined in claim 2, further comprising:
  - a base plate connected to the one of the longitudinal extending sides; and wherein:
    - the connector member includes opposite ends, one end of the connector member is connected to the support member and the other end of the connector member is connected to the base plate.
4. A seat cushion as defined in claim 2, wherein:

the connector member has a length that is adjustable to move the support member in a direction substantially parallel to one of the longitudinal or transverse sides along which the connector member extends.

5. A seat cushion as defined in claim 4, wherein:

adjustment in length of the connector member changes the shape of the support contour adjacent to the rear corner where the support member is located.

6. A seat cushion as defined in claim 4, wherein:

adjustment to shorten length of the connector member moves the support areas relatively more forward within the center cavity.

7. A seat cushion as defined in claim 4, wherein:

the connector member comprises a strap having first and second portions;

5 the first portion of the strap is connected to the support member; and  
the second portion of the strap is connected to the one of the longitudinally or transversely extending sides along which the strap extends.

8. A seat cushion as defined in claim 7, wherein:

the strap includes a fastener; and

the first and second portions are interconnected by the fastener.

9. A seat cushion as defined in claim 8, wherein:

a functional length of the strap is adjustable.

10. A seat cushion as defined in claim 9, wherein:

the fastener connects the first and second portions at a plurality of selected positions to adjust the functional length of the strap.

11. A seat cushion as defined in claim 10, wherein:

the fastener comprises a buckle.

12. A seat cushion as defined in claim 11, wherein:

the buckle connects the first and the second portions of the strap;

and

the buckle is fixed to one of the first or second portions of the strap,  
5 and the buckle holds the other one of the first or second portions of the strap to  
adjust the functional length of the strap.

13. A seat cushion as defined in claim 12, wherein:  
the buckle holds the other one of the first or second portions by  
friction.

14. A seat cushion as defined in claim 7, wherein:  
the second portion of the strap is connected at a position along the  
one of the longitudinally or transversely extending sides; and  
the position along the one of the longitudinally or transversely  
5 extending sides at which the second portion of the strap is connected is  
adjustable.

15. A seat cushion as defined in claim 14, wherein:  
the second portion of the strap is connected in the position along the  
one of the longitudinally or transversely extending sides by a hook and loop  
fastener.

16. A seat cushion as defined in claim 2, further comprising:  
a second connector member connected to the support member and  
extending along the other one of the longitudinal or transverse sides, the first  
aforesaid connector member extending along the one side; and  
5 the first and second connector members connect to the same  
support member at the intersection of the one and the other of the longitudinal and  
transverse sides which intersect at the rear corner adjacent to the center cavity.

17. A seat cushion as defined in claim 16, wherein:  
the first and second connector members have functional lengths that  
are adjustable independently of one another to move the support member in a  
direction parallel to the extension of the one and the other of the longitudinal or  
5 transverse sides, respectively; and  
adjustment of a functional length of either one of the connector  
members changes the shape of the support contour at the cavity where the  
support member is located.

18. A seat cushion as defined in claim 17, wherein the bony prominences of the pelvic area include ischial tuberosities and coccyx and sacrum, and wherein the seat cushion includes:

5 a back wall surrounding the rear pelvic area of the person, the back wall defining a portion of the center cavity of the support contour, the transversely extending rear side of the cushion including the back wall; and wherein:

the center cavity is located directly below the ischial tuberosities of the person sitting when on the support contour, the cavity curving downwardly and longitudinally forwardly and transversely inwardly from the back wall to a generally  
10 horizontal lowermost surface area of the cavity, the lowermost surface area of the cavity is at a location vertically spaced below the ischial tuberosities and has longitudinal and transverse dimensions relative to the ischial tuberosities to establish the relatively less pressure on the skin covering the ischial tuberosities during movement within an anticipated range of forward, backward and side to  
15 side movement of an upper torso of the person sitting on the support contour, the lowermost surface area constituting one relief area of the support contour;

a channel area located directly behind the coccyx and sacrum of the person sitting on the support contour, the channel area extending downwardly and longitudinally forwardly from the back wall toward the lowermost surface area of  
20 the cavity at a transverse midline of the support contour, the channel area has dimensions extending longitudinally and transversely relative to the coccyx and sacrum to establish the relatively less pressure on the skin covering the coccyx and sacrum during an anticipated range of normal movement of the pelvic area of the person while sitting on the support contour, the channel area constituting a  
25 relief area;

at least one pelvic protrusion area located adjacent the skin covering the tissue masses at the opposite lateral posterior buttocks of the person sitting on the support contour, each pelvic protrusion area located at transversely oppositely spaced positions from the channel area, each pelvic protrusion area generally  
30 curving vertically downwardly and transversely and longitudinally inwardly from the back wall toward the lowermost surface area, each pelvic protrusion area

terminating vertically above the lowermost surface area, each pelvic protrusion area defining a forwardly and upwardly facing contact surface to contact the skin covering the tissue masses at the lateral posterior buttocks, the forwardly and upwardly facing contact surfaces transferring force to the tissue masses at the opposite posterior buttocks to offload pressure from the skin covering the coccyx and sacrum while the person is sitting on the support contour, each pelvic protrusion area constituting a support area; and wherein:

the contact surfaces of the protrusion areas extend forwardly into the cavity compared to the channel area; and

shortening a functional length of the second support member moves the pelvic protrusion area adjacent to the support member relatively more transversely inward toward the pelvic area of the user.

19. A seat cushion as defined in claim 18, wherein the bony prominences of the pelvic area also include greater trochanters, and wherein the seat cushion further includes:

a lateral area on each opposite transverse side of the cavity and located transversely to the outside of and vertically below the greater trochanters of the person sitting on the support contour, each lateral area generally curving vertically downwardly and transversely inwardly from an outer periphery of the support contour to intersect transverse opposite sides of the cavity at a position above the ischial tuberosities of the person sitting on the support contour, the lateral areas also extending longitudinally relative to the greater trochanters of the person sitting on the support contour, the lateral areas having sufficient longitudinal, transverse and vertical dimensions to establish the relatively less pressure on the skin covering the greater trochanters during movement within an anticipated range of different contacting support positions of the person on the support contour, each lateral area constituting one relief area; and

a posterior thigh protrusion area located beneath the skin covering the tissue masses at the posterior thighs of the person sitting on the support contour, each posterior thigh protrusion area located on transversely oppositely sides of a longitudinal midline through the support contour, each posterior thigh

protrusion area positioned vertically above and longitudinally forward of each lateral area, each posterior thigh protrusion area defining an upwardly facing fulcrum-like contact surface at a posterior position of the thigh leg bone, the posterior thigh protrusion areas have sufficient longitudinal, transverse and vertical dimensions to establish the relatively greater pressure on the skin covering the tissue masses at the posterior thighs, the fulcrum-like contact surfaces transferring force from the legs distal to the proximal thighs in a lever-like manner through the thigh bones to elevate the greater trochanters relative to the lateral areas while the person is sitting on the support contour, each posterior thigh protrusion area constitutes a support area; and wherein:

shortening a functional length of the first connector member moves the pelvic protrusion area adjacent to the support member relatively more forward toward the pelvic area of the user.

20. A seat cushion comprising a resilient seat support structure having longitudinally-extending and transversely-extending sides intersecting at corners and defining an upward facing support contour extending between the sides to contact and support a person in a sitting position, comprising:

5 relief areas defined by the support contour and positioned adjacent to skin covering the ischial tuberosities, the greater trochanters and the coccyx and sacrum of a pelvic area of the person sitting on the support contour;

support areas defined by the support contour and positioned adjacent to skin covering tissue masses on opposite lateral sides of the posterior  
10 buttocks and beneath the proximal thighs of the person;

a support member positioned at a corner where a longitudinally-extending and a rear transversely-extending sidewall of the seat support structure intersect, the support member being relatively less flexible than the seat support structure to resist deformation of the support contour when contacted by the  
15 person seated on the seat cushion;

a longitudinal connector member that connects the support member to a longitudinally extending side of the seat support structure at a position longitudinally spaced from the corner where the support member is located, the

longitudinal connector member restraining the support member to resist  
20 longitudinal deformation of the support contour at the corner where the support  
member is located;

a transverse connector member that connects the support member  
to a rear transverse extending side of the seat support structure at a position  
transversely spaced from the corner where the support member is located, the  
25 transverse connector member restraining the support member to resist transverse  
deformation of the support contour at the corner where the support member is  
located; and wherein:

the relief areas and support areas are spaced relatively more away  
from and relatively more toward the pelvic area of the person, respectively, to  
30 establish relatively less pressure on the skin in the relief areas and relatively more  
pressure on the skin in the support areas and the support member supports the  
corner of the seat support structure to assist in maintaining the support contour of  
the seat support structure at the corner.

21. A seat cushion as defined in claim 20, wherein the longitudinal  
connector member adjusts to move longitudinally the support member and a  
portion of the seat support structure at the corner where the support member is  
located to alter the support contour.

22. A seat cushion as defined in claim 21, wherein the transverse  
connector member adjusts to move transversely the support member and a  
portion of the seat support structure at the corner where the support member is  
located to alter the support contour.

23. A seat cushion as defined in claim 20, wherein the transverse  
connector member adjusts to move transversely the support member and a  
portion of the seat support structure at the corner where the support member is  
located to alter the support contour.

24. A seat cushion as defined in claim 20, wherein one of the  
longitudinal or transverse connector members adjusts to move the support  
member and a portion of the seat support structure at the corner where the  
support member is located to alter the support contour.

25. A seat cushion as defined in claim 24, wherein the movement of the support member compresses a part of the seat support structure at the corner where the support member is located to alter the support contour at that location.

26. A seat cushion as defined in claim 20, wherein:

the support member is positioned at a first corner of the seat support structure, the support member positioned at the first corner being a first support member; the longitudinal connector member connecting to the first support member being a first longitudinal connector member, the transverse connector member connecting to the first support member being a first transverse connector member; and further comprising:

a second support member positioned at a second corner of the seat support structure;

10 a second longitudinal connector member that connects the second support member to the other of longitudinally extending sides of the seat support structure which is opposite of the one longitudinally extending side to which the first longitudinal connector member is connected;

15 a second transverse connector member that connects the second support member to the same rear transverse extending side of the seat support structure to which the first transverse connector member is connected; and wherein:

20 the first and second support members reinforce the flexible seat support structure to maintain the support contour against significant deformation at the first and second corners in response to the user sitting on the cushion.

27. A seat cushion as defined in claim 26, wherein the first and second support members are moveable independently of each other.

28. A seat cushion as defined in claim 26, wherein the connector members comprise straps and the first and second longitudinal connector members are formed by portions of a single continuous strap.

29. A seat cushion as defined in claim 28, wherein a portion of the single continuous strap is connected to a bottom surface of the seat support structure.



30. A seat cushion as defined in claim 20, wherein the longitudinal connector member and the transverse connector member connector comprise straps.

31. A seat cushion as defined in claim 30, wherein the straps are made from nylon.

32. A seat cushion as defined in claim 30, wherein the straps include end portions that are connected together with hook and loop fasteners.

33. A seat cushion as defined in claim 32, wherein the transverse connector member connects to itself with hook and loop connectors to connect the support member to the rear transverse extending side of the seat support structure.

34. A seat cushion as defined in claim 32, further comprising:  
an attachment strip that is connected to one of the longitudinally or rear transverse extending sides of the seat support structure, and wherein the connector member on the one of the longitudinally or rear transverse extending  
5 side connects to the attachment strip.

35. A seat cushion as defined in claim 30, further comprising:  
a slotted connector pivotally connected to the support member and connecting the support member to one of the longitudinal or transverse connector members.

36. A seat cushion as defined in claim 30, further comprising:  
a slot defined within the support member; and wherein:  
one of the longitudinal or transverse connector member loops  
through the slot to connect the support member to the seat support structure.

37. A seat cushion as defined in claim 26, further comprising:  
a brace connected to extend a distance between a first point on the first support member and a second point on the second support member and to maintain the distance between the first point and the second point.

38. A seat cushion as defined in claim 37, wherein:  
the connector members have functional lengths that are adjustable,  
the seat cushion further comprising:

a pivot joint connecting the first support member to the brace to allow  
5 the first transverse connector member to pivot the first support member  
transversely with respect to the brace by adjusting the functional length of the first  
transverse connector member; and wherein:

the first support member is pivoted longitudinally by adjusting the  
functional length of the first longitudinal connector member.

39. A seat cushion as defined in claim 38, wherein:

the pivot joint connecting the first support member to the brace is the  
first pivot joint, the seat cushion further comprising:

a second pivot joint connecting the second support member to the  
5 brace to allow the second transverse connector member to pivot the second  
support member transversely with respect to the brace by adjusting the functional  
length of the second transverse connector member; and wherein:

the second support member is pivoted longitudinally by adjusting the  
functional length of the second longitudinal connector member.

40. A seat cushion as defined in claim 39, wherein:

the first transverse connector member connects to the first support  
member and to the second pivot joint.

41. A seat cushion as defined in claim 39, wherein:

the second transverse connector member connects to the second  
support member and to the first pivot joint.

42. A method of supporting a person in a seated position on a resilient  
seat cushion, the person having a pelvic area with bony prominences; the method  
comprising:

positioning the person on a support contour defined by a seat  
5 support structure of the seat cushion, the seat support structure formed of resilient  
flexible material, the seat support structure comprising generally transversely  
spaced and longitudinally extending longitudinal sides and generally longitudinally  
spaced and transversely extending transverse sides, the sides intersecting one  
another at corners, and an upper surface extending between the sides and  
10 defining the support contour, the support contour including a cavity portion to

receive the pelvic area of the person in the seated position, the cavity portion of the support contour including relief areas at locations adjacent to skin covering the bony prominences of the pelvic area of the person positioned on the seat support structure and also including support areas adjacent to skin covering tissue masses  
15 spaced from the bony prominences, the relief areas and support areas spaced relatively more toward and relatively more away from the bony prominences, respectively; the seat support structure also including a support member located at a corner adjacent to the cavity, the support member having relatively less resilience than the seat cushion;

20 positioning the seat support structure with the support areas at locations adjacent to the tissue masses;

positioning the seat support structure with the relief areas at locations adjacent to the bony prominences; and

25 restraining the resilient seat support structure and the support areas of the support contour against outward deformation away from the pelvic area by retaining the support member to at least one of the longitudinal or transverse sides of the seat support structure at a position spaced from the intersection of the sides at the corner where the support member is located.

43. A method as defined in claim 42, further comprising:

restraining the resilient seat support structure and the support areas of the support contour against outward deformation away from the pelvic area by retaining the support member to both of the longitudinal and transverse sides of  
5 the seat support structure at positions spaced from the intersection of the sides at the corner where the support member is located.

44. A method as defined in claim 42, further comprising:

establishing a functional length of the retention between the support member and the position on the side of the support structure; and  
adjusting the functional length of the retention to move the support  
5 member in a direction substantially parallel to the one of the longitudinal or transverse sides.

45. A method as defined in claim 44, further comprising:

changing the shape of the support contour in the cavity at a location adjacent to the corner where the support member is located by adjusting the functional length of retention.

46. A method as defined in claim 45, further comprising:

moving the support areas relatively more toward the pelvic area of the user by shortening the functional length of the retention.

47. A method as defined in claim 44, wherein the seat support structure includes a connector member which is connected to and which extends between the support member and the position at which the support member is retained to the side of the seat support structure, the method further comprising:

5 adjusting the length of the connector member to adjust the functional length of the retention and to move the support member.

48. A method as defined in claim 47, wherein the connector member includes a strap having two end portions and a buckle connected to the two end portions, the method further comprising:

5 moving the buckle along one of the strap portions in a direction substantially parallel with the one longitudinal or transverse side of the seat cushion to adjust the length of the connector member.

49. A method as defined in claim 48, further comprising:

maintaining the adjusted functional length of the connector member to maintain the changed shape of the support contour.

50. A method as defined in claim 48, further comprising:

increasing tension in at least one of the end portions of the strap to change the shape of the support contour.

51. A method as defined in claim 45, further comprising:

pivoting the support member about a relatively stationary pivot point by adjusting the functional length of the retention; and

5 changing the shape of the support contour by pivoting the support member.

52. A method as defined in claim 51, wherein the connector member includes a strap having two end portions and a fastener connecting the two end portions at a plurality of locations, the method further comprising:

- 5 moving the connection of the fastener from one of the locations on the strap to another one of the locations to adjust the length of the connector member.

53. A method as defined in claim 45, wherein the connector member includes a strap having two end portions, the method further comprising:

adjusting the length of the strap to establish the functional length of retention.